P r o C a l c

spread sheet calculator for the Hitachi Peach computer

OPERATORS MANUAL

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ProCalc VISUAL SPREAD SHEET CALCULATOR

USERS MANUAL

Table of Contents

Topic	Page
Introduction	3
ProCalc Screen Layout	4
Definitions	4
Functions	5
Training Program (worked example)	6
Command Specifications.	
Blank	14
Calculate	15
Clear	16
Copy	17
Cursor	18
Delete	19
Files	20
Format	21
Help	22
Insert	23
Load	24
Print	25
Save	26
Sort	27
Title	28
Width	29
ProCalc Program Listings.	
Cheque Register	30

Data Diskette Directory

FORECAST (Budget forecasting aid)
CHEQUES (Cheque Register)

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INTRODUCTION

This manual contains examples of every phase of operation of your ProCalc programme. It is highly recommended that you follow the examples by loading ProCalc into your "Peach" computer and performing the operations described. This sequential working through the manual ensures a level of familiarity that is required by each section. Having done this you will be able to successfully use ProCalc with little reference to the manual - making actual working of the system much faster. It is to your benefit to take the time to read the manual carefully the first time.

SYSTEM REQUIREMENTS

ProCalc is designed to be run on the following configuration of Hitachi "Peach" computer.

Hitachi MB-6890 computer
Hitachi C14-2170 RGB colour monitor (or Green-screen)
A suitable dual disk-drive
A printer with parallel interface (optional)

SYSTEM START-UP

Make certain that all the components of the computer system are properly connected and switched on. Your hardware manuals will explain the correct procedures and your Hitachi dealer will gladly give advice and assistance if required.

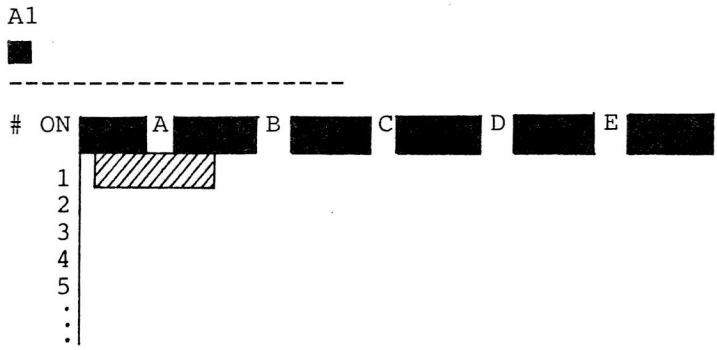
Place the ProCalc diskette into drive 0, and a clean formatted and initialised data diskette into drive 1. The ProCalc diskette does not contain the ulitities to format the data disk this is done using your DOS diskette. After inserting the diskettes into the drives press the [ON/OFF| button on the console - your ProCalc will automatically load into the computer.

Note: The ProCalc diskette cannot be copied as it uses a different operating system to the standard Disk Basic - so take care of your systems disk. The data diskette is in normal "Peach" basic format and can be backed-up using the normal DOS utilities.

INTERFACING

A special utility programme is available that permits data transfer between ProCalc programmes resident on different computers via a modem.
The HiData data base management system has a utility that either creates ProCalc compatible data files from HiData files or the reverse.

ProCalc Screen Layout



The above illustration shows the ProCalc screen layout. Although the layout is simple it is necessary to understand the terminology associated with the spread sheet in order to follow the worked example.

CURSOR — An indicator block. The ProCalc screen has two cursors .
The small WHITE CURSOR that indicates the place where the next character typed will appear. The white cursor is only seen on lines 1 and 2 at the top leftmost corner of the screen.
The YELLOW CURSOR is an indicator of the cell in the spread sheet that you are currently able to enter data into. The location of the yellow cursor is given by the cursor position indicator which is at the start of line 1.

CELL — The spread sheet is organised as a series of vertical COLUMNS and horizontal ROWS. The columns are sequenced alphabetically and the rows numerically. The data storage locations are known as cells and are referenced by their co-ordinates. eg. G5 represents the cell at column G row 5. There are two types of cell. DATA cells which contain information that is initially typed (entered) into the cell and RESULTANT cells which are the result of an arithmetic calculation,the formula for which is stored in a 'back-ground' cell with the same co-ordinates. When the yellow cursor is in a resultant cell the formula related to that cell is displayed on line 1 next to the cursor position indicator.

EXPRESSION — The arithmetic formula for calculating the value of a resultant cell.

FUNCTIONS

ProCalc has the following functions that can be used in arithmetic expressions. These are identical to those in the HITACHI BASIC language:

ABS	INT			
SIN	COS	TAN	ATN	(in radians)
LOG	EXP	~	SQR	

Additional functions are:

+AVR(nm,xy)	Giving the average value of cells nm to xy.
+SUM(nm,xy)	Giving the sum of values in cells nm to xy.
PAI	The value of pi.

ProCalc has 16 digit numeric accuracy.

ProCalc redefines the program function keys as follows:

PF1 - /LOAD[CR|	PF6 - /INSERT[CR|
PF2 - /SAVE[CR|	PF7 - /DELETE[CR|
PF3 - /CURSOR[CR|	PF8 - /COPY[CR|
PF4 - /WIDTH[CR|	PF9 - /SORT[CR|
PF5 - /BLANK[CR|	PF10 - /FORMAT[CR|

CONVENTIONS USED IN THIS TEXT

[CR|	Press the RETURN key
[PFx|	Press the relevant PROGRAM FUNCTION key
\nm}	Used in the ProCalc example listings to indicate the cell location.
[PF6|-[PF10|	These are shifted PF1 - PF5 respectively
CAPS LOCK	The CAPS LOCK key when depressed puts the key-board into typewriter mode. Characters are lower case unless the SHIFT KEY is used. When the Peach is in typewriter mode the light under the CAPS LOCK key is on.

A Worked Example

The object of this exercise is to introduce you to the conventions of entering data into a ProCalc spread sheet, and to provide instruction in the use of the commands. The uses to which ProCalc can be applied is limited by its size and the inventiveness of the user. With a bit of practice you will be able to do amazing things with your ProCalc.

As a first exercise we have chosen a small work sheet, one that will be on view all the time (other than a few work fields). In practice you may want to position portions of the spread sheet off screen (as though you were treating each as a separate sub-routine).

The first task is to design a layout. For this purpose I used a COBOL coding sheet, but any sheet of paper would do. Our problem is to calculate target figures for our company budgets, allowing for variations in the following factors:-

(1) Inflation Rate (expressed as a %)
(2) Commissions on Sales (expressed as a %)
(3) Estimated variances in sales (expressed as a %)
(4) The time span (whole number of months)

The values that have to be estimated are :-

(1) Sales of Hardware
(2) Sales of Software
(3) Commissions on sales
(4) Freight
(5) Cost of Goods
(6) Administrative Salaries
(7) Rentals
(8) Electricity Bills
(9) Phone Bills
(10) Advertising Costs
(11) Other Misc. Expenses

For the purpose of this exercise we assume that the Sales figures are not related to the normal inflation rate, that our Rental will remain constant for the period that we are looking at, and that all other figures will vary in accordance with inflation with the exception of Commissions on Sales which is influenced by both the value of Sales and the percentage of Commission.

Now lets get started. Switch the Peach, disk drives, monitor and printer on. Insert the ProCalc disk into drive 0 and a clean formatted data disk into drive 1. Press the ON button on the Peach console. After the normal boot-up sounds a blank ProCalc spread sheet appears on screen. You can move the yellow cursor around the spread sheet by using the ARROW keys on the numeric key pad. The size of the spread sheet varies according to the available memory, so move your cursor to the right most limit. If you are using a 40K machine then you will have up to column Z. Move your cursor down to the last line. This would be row 60 in a 40K Peach. If you are at cell Z60 then you will notice that this address is shown at the top left side of the screen.

To get the cursor back to cell A1 hit the SPACE BAR then the HOME/CLS key. The small white cursor that was on line 2 moves to line 1 over the cell address. Alter this by typing A1 (and a space to erase the 0), hit return and the spread sheet moves across the screen placing cell A1 at the top left corner. This can be used to place any cell at the top left corner of the screen.

Having become aquainted with the cursor movements let's give the model a heading. Type the command /TITLE[CR|, (all commands are prefixed by a / and terminated with a carriage return). ProCalc asks - Title?; so let's type ours - BUDGET FORECASTER [CR|. Immediately the title is transferred to the top right hand corner of the screen. Titles will be printed in double size characters on the printer (if you have multiple fonts) as a centered heading to our hard copy.

One of the nice features of ProCalc is that the columns don't all have to be the same size, so let's set the width of our columns.If your cursor is not at cell A1 then move it there. Give column A a width of 25 characters by pressing [PF4|. The word /WIDTH appears on line 2 at the top left corner of the screen, type 25[CR|. Notice the change in the size of the yellow cursor,the dotted white line under the white cursor and the actual column width. Move the cursor to B1, press [PF4| type 10[CR|. We will use a narrow column C as a spacer between the numeric values in columns B and D so move the cursor to C1, press [PF4|, type 3[CR|.Set the width of D in the same way as B (shift cursor to D1 [PF4| 10[CR|);add another 3 character wide column E (shift cursor to E1 [PF4|3[CR|).Leave column F set to the default 13 characters, move the cursor to G1 and set it to a width of 6 characters ([PF4|6[CR|).

So far all our cursor movement has been done by using the arrow keys. We can set automatic cursor movement, which can be very useful in long sequential data entry. Move the cursor to A1 then Press [PF3| [CR| and ProCalc will display the message (Up,Down,Right,Left)?; type D [CR|. Another prompt will appear asking Range From,To ?. For our example type A1,A20 [CR|. We are now at the stage of entering data - Type the following, ITEM[CR| the cursor should have moved to A2. Not having to worry about moving the cursor will speed up data entry, type

```
========================[CR|
INCOME[CR|
"  Sales - hardware [CR|
"  Sales - software[CR|
```

The quote signs before the Sales lines were to allow for indenting (ProCalc will not accept leading spaces on data entry). Our next entry needs to be right justified so type

```
"(sub-total)  $"
```

Move the white cursor back to the first bracket '(' and insert spaces by holding the shift key down and pressing the INS/DEL key, move the data over until the $ overhangs the dotted white line. The quote signs are not taken into account by ProCalc so that the $ would be placed at the very end of the data field.

Check that the data is correctly placed in the cell (A6). If not move the cursor up using the arrow key and retype the data. Type the following lines

```
EXPENSES[CR|
"  Commissions[CR|
"  Rental[CR|
"  Cost of goods[CR|
"  Freight[CR|
"  Salaries - admin.[CR|
"  Electricity[CR|
"  Telephone[CR|
"  Advertising[CR|
"  Misc. expenses[CR|
"           (sub-total)  $[CR|
"[CR|
NET INCOME[CR|
% INCOME/SALES[CR|
```

The yellow cursor automatically moves to A1 again. To reset the cursor movement to move across the screen, type

```
[PF3|R[CR|B1,G1[CR|
THIS MONTH[CR|
"[CR|
"  ESTIMATE[CR|
"[CR|
VARIABLES[CR|
VAR. %[CR|
```

The cursor will now return to B2. Copy the underline from A2 across all the columns by typing

```
[PF8|A2[CR|B2,G2[CR|
```

For the next few commands we want the cursor stationary so cancel the automatic movement by typing

```
[PF3|Z[CR|Z[CR|
```

Using the arrow keys move the yellow cursor to cell B4. Enter a zero by typing

```
0[CR|
```

notice that the numeric values are right justified in the cell.

In order to make hard copy printouts more readable we will format most of the numeric fields on the spread sheet to have a comma between the thousands and ten-thousands columns. To set the format for this cell type

```
[PF10|###,###[CR|6[CR|
```

This will record that particular format as "List" 6. To avoid repeating this sequence for all the numeric fields in column B we can copy the zero and the formatting instructions with a single command sequence. Type

```
/COPY#[CR|B4[CR|B5,B20[CR|
```

A column of zeros will appear. Actually cells B7 and B18 should be blank so move the cursor to B7 and press [PF5| then move the cursor to B18 and press [PF5|. The blank command completely clears the cell of data and formatting instructions. Cell B20 will contain a percentage which will be more meaningful if expressed with decimal places so move the cursor to B20 and type

[PF10|[CR|4[CR|

List 4 is one of the 5 predefined formats and is the equivalent of ###.##. The zero value should now appear as 0.00.
Cells B20,B19,B27,B8 and B6 are all the result of arithmetic computations We can store the formulae (expressions) in much the same manner as the formatting instructions. Before doing this we will switch the calculation mode switch OFF. To do this type

#OFF[CR|

When entering numeric expressions you must always prefix them with a + or - sign. The yellow cursor should still be at B20 (if not move it there); type

+(B19/B6)*100[CR|

The above divides the value in B19 by the value in B6 and multiplies the result by 100 placing the final result in B20. Move the cursor to B19 and enter

+B6-B17[CR|

The result of the calculation subtracting the value in B17 from the value in B6 is placed in B19. Move the cursor up to B17 and enter

+SUM(B8,B16)[CR|

This totals the values of all cells bewtween B8 and B16 placing the answer in B17. Move the cursor to B8 and enter the expression

+B6*G4/100[CR|

We will set G4 (the % of commission paid on sales) after completing the entry of the expressions in column B.

The last formula to be entered in column B is in B6 the Income sub-total, type the expression

+B4+B5[CR|

A good percentage of the information required to set-up column B is also required for column D. A relational copy command would transfer all the report formatting instructions, formulae, and initial values. Doing this would save a lot of time (and typing). To do this type

/COPY#[CR|B4,B20[CR|D4[CR|

As earlier promised we will now set-up columns F and G, they will

hold the variables needed for our calculations. This will make the screen more understandable when we enter the numerical expressions into column D. Move the yellow cursor to cell F3 (remember the cell location of the yellow cursor is always shown at the top lefthand corner of the screen, as an aid to you). Don't use the cursor positioning trick described earlier, as this would shift everything that we have set-up off the screen. We can set the cursor movement and the variable descriptions by typing

```
[PF3|D[CR|F3,F6[CR|
INFLATION[CR|
COMMISSION[CR|
SALES VARIANT[CR|
NO. OF MONTHS[CR|
```

Turn off the cursor movement by typing

```
[PF3|Z[CR|Z[CR|
```

Move the cursor to G3 to begin formatting fields. The first three require 3 decimal places. As this is not on the standard format list we will place it into List 7. The number of months field used to set the period of forward projection will always be a whole number, so we can use List 1. The entries required to set this up are

```
1[CR|
[PF10|##.###[CR|7[CR|
/COPY#[CR|G3[CR|G4,G6[CR|
```

Move the cursor to G6 and enter

```
[PF10|[CR|1[CR|
```

We have now set numeric expressions, formats and values in each of the variables. The sales variant is set to 0 to maintain current sales levels to 50 if the sales are estimated to go up by 50% during the next year or -50 if the sales were expected to drop by 50%. This is an opportune time to bring to your attention the fact that ProCalc will not allow a division by zero, should you try this a "division by zero" error message will be displayed.

Turning our attention back to column D, let us set the arithmetic expressions. Move the yellow cursor to D4 and enter

```
[PF3|D[CR|D4,D12[CR|
+(B4*(1+((G5/12)*G6/100)))[CR|
+(B5*(1+((G5/12)*G6/100)))[CR|
+D4+D5[CR|
"[CR|
+D6*D4/100[CR|
+B9[CR|
```

At this stage let's pause to see what we have done. The formulae in cells D4 and D5 are very similar, but if we had used a relational copy into D5 then the cell addresses G5 and G6 would have been relationally changed to be G6 and G7. The actual formula multiplies the value in either B4 or B5 by the pro-rata estimated sales variant for the number of months being projected.

Typing similar expressions numerous time can be tedious, so we will look at two ways of avoiding this. The expressions associated with each of the cells D10 to D16 would be relationally the same if there was a both a No. of Months and an Inflation rate associated with each cell on the same level. To achieve this we can set-up a column of Inflation rates starting at I10 and ending at I16, and we can place a column of Months starting at J10. By placing these values off screen we will have a better looking screen layout. The copy used to transfer these values need not be relational so we can use program function key 8. Type

```
[PF8|G3[CR|I10,I16[CR|
[PF8|G6[CR|J10,J16[CR|
```

Now cancel the cursor movement, then set-up the expression for D10 and copy this with a relational copy into D11 to D16. Move the cursor to D10 and enter

```
[PF3|Z[CR|Z[CR|
+B10+((B10*(I10*(J10/12))/100)[CR|
/COPY#[CR|D10[CR|D11,D16[CR|
```

In order to place the value of the cells G3 and G6 into columns I and J each time G3 or G6 are altered we need an expression of their relationship. We will enter the expression at the top of each column and copy it into the remainder of the column. As we position the cursor at I10 some of the spread sheet will move off the screen. When the cursor is in place at I10 type

```
+G3[CR|
[PF8|I10[CR|I11,I16[CR|
```

Move the cursor to J10 and set the formula into column J by entering

```
+G6[CR|
[PF8|J10[CR|J11,J16[CR|
```

To reposition the spread sheet on the screen press the Space-Bar then the HOME-CLS key, alter the cursor address to A1 then press [CR|. All that is necessary now is to enter data into the relevant cells in column B then we can set ProCalc to work. Move the cursor to B4 and then type

```
[PF3|D[CR|B4,B16[CR|
20000[CR|
10000[CR|
```

Press the down arrow to move the cursor past cells B6,B7 and B8. Then continue entering data

```
450[CR|
15000[CR|
1000[CR|
2000[CR|
50[CR|
250[CR|
500[CR|
100[CR|
```

Cancel the cursor movement by typing

[PF3|Z[CR|Z[CR|

Move the cursor to column G, and move the cursor to any of the fields, enter a value (remember to [CR|). Nothing happens because we earlier turned the calculator off. To turn it on again type

#ON[CR|

Now keep changing the values in column G and watch carefully what happens. Calculations using values in columns I and J are actually one step behind. This is because values are computed from Left to Right and the Inflation or No. of Months values have not yet been transferred to columns I and J when earlier columns are worked on. In order to make certain that all factors have been updated type

#[CR|

after having entered a change to a variable. This is known as recalculation. Having introduced you to recalculation we can now show you how to overcome the need for it on this spread sheet. Move the cursor to D10. Notice that the formula is displayed next to the cell address on the left top side of the screen. Re-enter the formula by typing

+B10+((B10*(G3*(G6/12)))/100)[CR|

Now copy this with a direct copy to cells D11 through D16 by entering

[PF8|D10[CR|D11,D16[CR|

Now we can alter the actual formula for each cell by moving the cursor down one cell at a time and changing the two B10's to Bnn where nn is the row number. Move the cursor to B11 the follow these instructions

Press the Space-Bar
Press the HOME/CLS key
Move the white cursor to the 0 of the first B10 using the arrow keys
Overwrite the 0 with a 1 to change it to B11
Move the cursor to the second 0
Overwrite this with a 1
Press [CR|

The expression now directly addresses the Inflation and No. of Months values and recalculation will not be necessary for this cell. Carry out the necessary alterations to the expressions in the remainder of the cells from B12 to B16. We can now delete columns I and J by moving the yellow cursor to the column and typing
[PF7|V[CR|

Relocate the spread sheet by altering the cell address to A1

Save the spread sheet on disk by entering

[PF2| EXAMPLE[CR|A1,G21[CR|

The spread sheet will now be stored on the disk in drive 1 under the name of EXAMPLE. Clear the spread sheet out of the computer memory by typing

/CLEAR[CR|Y[CR|

In ProCalc's words the spread sheet has been killed. Call it back by entering

[PF1| EXAMPLE[CR|A1[CR|

This will load the stored program back into memory with the top leftmost cell at A1. If you specified any other address it would place it there for you with all expressions suitably corrected. After playing with the values for a while in order to get used to ProCalc you can get a hard copy by typing

/? A1,G21[CR|

You have been introduced to most of the ProCalc functions and commands, and should find many fruitful uses for this superb program.

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BLANK

Purpose — To clear a cell

Format

```
/BLANK [CR|
/B. [CR|
[PF5|
```

Explanation — Move the yellow cursor to the cell that you wish to clear, then enter the Blank command. The cell contents are destroyed.

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CALCULATE

Purpose

To calculate the values of numerical expressions assigned to any cell.

Format

```
#[CR|
#ON[CR|
#OFF[CR|
```

Explanation

At the left side of the 4th line of the screen (the line giving the column width) a message either (# ON) or (# OFF) appears. When the status is shown as # OFF then no calculation occurs when data is entered. This allows a fast data entry.

When the status is # ON then each time data is entered into a cell that is addressed in a numeric expression then that expression is calculated before the data is stored in the cell.

If the status has been set as # OFF and you wish to calculate the values of the expressions in the spread sheet then type #[CR| and the calculations will be executed and cell values updated.

The calculation status can be altered at any time with no significance being given to the cursor position.

CLEAR

Purpose

To totally erase all data and formulae from the spread sheet.

Format

/CLEAR [CR|

No abbreviations allowed. ProCalc will respond with - KILL IT Y/N ?
Type either Y or N

Explanation

If you type an N in response to the prompt you will be returned to the ProCalc programme with no change to the spread sheet.
Should you type a Y the whole spread sheet will be cleared of data and calculation formulae. The yellow cursor will be positioned at cell number A1.
In effect you will be returned to the same position as you were at initial start-up.

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COPY

Purpose

To copy the contents of a cell or range of cells from one area into another.

Format

/COPY[CR|
/CO[CR|
[PF8|

/COPY#[CR|
/CO#[CR|

ProCalc will respond with (Range)?
Your reply can be either a single cell address or a Vertical or Horizontal range of addresses.
ProCalc will then prompt (Destination)?
Your reply is once again a single cell or a range of addresses.

Explanation

This is one of the most powerful commands that you have, and has a variety of uses.

The COPY command copies the contents of a cell unaltered, including numerical expressions.

The COPY# command alters copied numerical expressions relatively - ie. If C10 has a numerical expression in it say +SUM(C1,C9) and this was copied to D10 then D10 would contain +SUM(D1,D9). Relative changes are made to values that are copied with the COPY# command in INSERT and DELETE commands as well.

COPY# can also be used for entering report formatting commands from one cell to another.

When COPYing from 1 cell to a range of cells give only 1 address in response to the Range? prompt - and give the double cell range in response to the Destination? prompt.
eg. (Range)? A1[CR| (Destination)? B10,B20[CR| will copy the contents of A1 to the 11 cells from B10 to B20.

When COPYing a range of cells give the location of the range in response to the Range? prompt and a single cell address in response to the Destination? prompt - either the lowest cell number in a column or the leftmost cell of a row. eg. (Range)? A3,H3[CR| (Destination)? A20[CR| will copy the contents of range A3 to H3 into range A20 to H20.

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CURSOR

Purpose

To set the direction of cursor movement.

Format

/CURSOR [CR|
/C. [CR|
[PF3|

ProCalc responds with (Up,Down,Right,Left)?
Reply with U,D,R, or L and a [CR|

ProCalc will then request a range of cells for which the command is to apply.This can be either horizontal or vertical. Give the cell locations and [CR|. Eg. A5,A20[CR|

Explanation

The CURSOR command sets the direction of cursor movement and its limits. If the movement is set as Down from A1 to A10 then after entering data into a cell the cursor will shift to the next cell down, until data is entered into A10, when it will return to A1.

When changing cursor direction ProCalc will show the current limits set. Should you wish to keep these then type a [CR|. If you wish to stop cursor movement type a Z[CR|.The cursor can then be moved manually using the keypad arrows.

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DELETE

Purpose

To delete rows or columns from the spread sheet.

Format

```
/DELETE[CR|
/D.[CR|
[PF7|
ProCalc responds with (Hor. or Vert.)?
Type H[CR| to delete a row, or
Type V[CR| to delete a column.
```

Explanation

Position the cursor in the row or column that you wish to remove from the spread sheet. Then enter the delete command.

Numerical expressions are not necessarily altered and may need correction depending on how they were entered into the cell. Please read the note regarding this in the explanation of the INSERT command.

FILES

Purpose

To display a list of all the files on the data disk, and to allow file deletion.

Format

```
/FILES [CR|
/FILES? [CR|
```

Explanation

ProCalc responds to the files command by clearing the spread sheet from the screen and Displays the message
"To KILL any file - Enter file name,
Hit 'RETURN' to go back to worksheet"
A list of file names and disk attributes is then given, together with the number of files on disk.

Should you wish to delete a file type its name followed by a [CR|. This causes the name to be deleted from the list and ProCalc waits for your next instruction. A [CR| without a file name causes the spread sheet to be displayed again.

The FILES? command prints a list of file names on the printer, there is no delete option with this command.

FORMAT

Purpose

To allow the formatting of numeric values on the spread sheet.

Format

/FORMAT[CR|
/FO[CR|
[PF10|
ProCalc reponds with Format?
Your response is a [CR| if the format is already defined or the format used in a Basic Print Using statement if it is a new format, followed by a [CR|.
ProCalc will then prompt List#?
Your reply is a number from 1-14 [CR|

Explanation

ProCalc has 5 pre-defined formats:-

(1) #,###,###,###
(2) ###,###,###.#
(3) ##,###,###.##
(4) ###.##
(5) ###.#

The "List" numbers 6 to 14 are user defined and can make use of any valid Basic Print Using formula. ProCalc can have numeric values with up to 16 digits.

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HELP

Purpose

To provide an on-screen user reference

Format

/HELP[CR|

Explanation

A short description of the various ProCalc functions are given at the top left corner. The description is changed each time you press the [SpaceBar|.

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INSERT

Purpose

To insert rows or columns into the spread sheet.

Format

/INSERT[CR|
/I.[CR|
ProCalc responds with (Hor. or Vert.)?
Type V[CR| to insert a new column, or
Type H[CR| to insert a new row.

Explanation

Locate the yellow cursor in the row or column at which the insertion is wanted. Type the command and the new line will be inserted. Rows are inserted above the cursor and columns are inserted to the left of the cursor.

Note that numerical expressions are not necessarily altered! You should check the effect on your spread sheet. For example if an expression was entered into cell F12, (+C5*1.175)- if a new column F was inserted then no alteration to the expression is necessary - the result of the calculation will be placed in G12. If however a new column C was added then the value that was in C5 would now be in D5 and the expression may have to be corrected. The exception is if the expression was copied into the cell using the COPY# command - in which case the expression will be relatively altered. ALWAYS CHECK your numeric expressions after an INSERT command.

Rows or columns will not be inserted if the limits of the spread sheet are reached.

LOAD

Purpose

To place a spread sheet or data previously saved on disk into the computer memory.

Format

```
/LOAD filename [CR|
/L. filename [CR|
[PF1|
/LOAD filename,D[CR|
/L. filename,D[CR|
[PF1|,D[CR|

ProCalc will respond with Origin?
Type nm[CR|
```

Explanation

The LOAD command loads all the data, field formatting information and numerical expressions into memory.
The switch ,D causes ProCalc to load only data and field formatting information,but not numerical expressions used to compute values of cells. This option can be used to load data into another spread sheet.

The origin co-ordinate provides the address of the top left most cell. The values of numerical expressions are relatively adjusted if the position of the spread sheet is not the same as that from which it was originally saved.

A new spread sheet can be built from other previously saved models, by successive LOAD commands and placing the origin in appropriate places.

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PRINT

Purpose

To make a hardcopy of all or portion of the spread sheet.

Format

```
/PRINT mn (,xy)[CR|
/PRINTN mn (,xy)[CR|
/PRINTS mn (,xy)[CR|
/? mn (,xy)[CR|
/?N mn (,xy)[CR|
/?S mn (,xy)[CR|
```

Explanation

The character size of the printout is set to normal at the start of the run. If a Hitachi MP-1041 or MP-1050 or compatible printer is used then the printer will be set to compressed mode printing with a PRINTS or ?S command. Normal printing will resume after receipt of a PRINTN or ?N command.

When using the print command the value of the parameters (nm) and (xy) can be easily visualised if they are taken as the diagonally opposite corners of a rectangle placed on the spread sheet. eg. A command /? A1,Z60[CR| would print the entire spread sheet (if it was all used) for a ProCalc program operating in a 40K Basic environment. /? A5,C7[CR| would print the value of the 9 cells A5 to A7, B5 to B7 and C5 to C7.

The command /?[CR| would print the data assuming the top left co-ordinate to be A1 and the cursor position to be the lower right co-ordinate.

SAVE

Purpose

To save all or portion of a spread sheet on disk.

Format

```
/SAVE filename [CR|
[PF2| filename [CR|
```

ProCalc will respond with Range?
Type nm (,xy) [CR|.

Explanation

All or part of a spread sheet can be saved to disk. Envisage the nm co-ordinate as the top left most corner of a rectangle and the xy co-ordinate as the lower rightmost corner. If the xy co-ordinate is not supplied then ProCalc assumes the cursor position to be that delimiter. All the data bounded by this rectangle will be saved as well as the data that ProCalc requires to reproduce the spread sheet at a later time. Data is always saved on drive 1 in ASCII format and can be accessed by other programs or backed-up using normal copying utilities.

SORT

Purpose

To sort the data in either rows or columns.

Format

/SORT[CR|
[PF9|

ProCalc responds with Sort Block from Cursor Pos. to:?
Type the address of the cell at the other end of the row or column to be sorted and a [CR|.
ProCalc will then prompt with R/C for Sort?
type the row number or column identifier [CR|.
You will then be prompted Descending..1, Ascending...2 ?.
Type either a 1 or a 2 and a [CR|.

Explanation

The sort will rearrange data in complete or part rows or columns. The sequence depends on the ASCII value of the the data. ASCII tables are readily obtainable, but as a general guide all numeric values have a lower sorting value than capital alphabetics which in turn are sorted lower than alphabetic lower case letters.

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TITLE

Purpose

Allows for the creation of a title line for a ProCalc spread sheet.

Format

/TITLE [CR|

No abbreviation allowed. ProCalc will respond with the prompt - TITLE ?
Type your spread sheet heading with a maximum of 20 characters.

Explanation

The title is printed on the the top right hand side of the spread sheet in expanded mode if a Hitachi MP-1041 or Star DP-8480 printer is used.

The title has no required relationship to the file name used in a SAVE or LOAD command.

WIDTH

Purpose

To set the width of columns.

Format

/WIDTH nn [CR|
/W. nn [CR|
[PF4| nn [CR|
nn = a numerical value from 1 to 59

Explanation

The initial width of all columns is set to 13 on start-up.
The width of a column can be altered by moving the yellow cursor to the head of the column and entering the WIDTH command.

Column widths can be changed at any time during spread sheet set-up.

If a column width is reduced so as to truncate the data displayed, the actual data in the cells affected are not destroyed. If the column width is then increased the data in the cells becomes visible again.

If the width of a column containing numeric values is increased the decimal portion of the cell values may be altered due to the inherent rounding method used in handling double precision arithmetic. Reformatting the data or reducing the column width will correct this.

CHEQUE REGISTER PROGRAM LISTING

This simple cheque register program will give you more experience in using ProCalc. You can extend the number of columns, change the headings and make other alterations that will make this program best suit your uses. Each time the cursor position changes we will indicate what the location is against the left margin enclosed in square brackets.

ENTER THIS COLUMN FIRST

```
\A1} /TITLE[CR|CHEQUE REGISTER[CR|
     [PF4|6[CR|
     Cheque[CR|
\B1} [PF4|1[CR|
\C1} [PF4|6[CR|
     " Date[CR|
\D1} [PF4|1[CR|
\E1} [PF4|17[CR|
     Comment[CR|
\F1} [PF4|1[CR|
\G1} [PF4|7[CR|
     HP&Rent[CR|
\H1} [PF4|1[CR|
\I1} [PF4|7[CR|
     " Motor[CR|
\J1} [PF4|1[CR|
\K1} [PF4|7[CR|
     " Other[CR|
\L1} [PF4|7[CR|
     Deposit[CR|
\M1} [PF4|1[CR|
\O1} [PF4|8[CR|
     Balance
     [SpaceBar|[Home|E2[CR|
\E2} ================[CR|
     [PF8|E2[CR|F2,O2[CR|
     [PF8|E2[CR|A2,D2[CR|
     [PF8|E2[CR|A19,O19[CR|
     [SpaceBar|[Home|L3[CR|
\L3} [ [CR|
\M3} opening[CR|
\N3} | [CR|
```

ENTER THIS COLUMN NEXT

```
\O3} 0[CR|
     [PF10|####.##[CR|6[CR|
     [PF8|O3[CR|G4,G18[CR|
     [PF8|O3[CR|I4,I18[CR|
     [PF8|O3[CR|K4,K18[CR|
     [PF8|O3[CR|M4,M18[CR|
     [PF8|O3[CR|O4,O18[CR|
\O4} +O3+M4-G4-I4-K4[CR|
     /COPY#[CR|O4[CR|
     O5,O18[CR|
     [SpaceBar|[Home|A4[CR|
\A4} 0[CR|
     [PF10|######[CR|7[CR|
\A5} +A4+1[CR|
     /COPY#[CR|A5[CR|
     A6,A18[CR|
\C4}    /  [CR|
     [PF8|C4[CR|C5,C18[CR|
     [SpaceBar|[Home|E20[CR|
\E20} "          Totals[CR|
\G20} +SUM(G4,G18)[CR|
     [PF10|[CR|6[CR|
     /COPY#[CR|G20[CR|
     I20,M20[CR|
\H20} [PF5|
\J20} [PF5|
     [SpaceBar|[Home|A1[CR|
 \A1}
 \A4} 123001[CR|
 \C4} Jul/18[CR|
 \G4} 175.25[CR|
 \O3} 1250.00[CR|
```

NOTES: Entering the initial cheque number into A4 will generate consecutive numbers for the other cheques.

The date is entered MMM/DD. If the numeric was placed first it would be necessary to type "DD/MMM else it would be assumed to be a bad numeric field.

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